

1. An injector device comprising:

a body containing a syringe with a needle and plunger;

a drive spring coupled with the syringe and operable, when released, to drive the syringe forward to inject the needle and

5 subsequently to dispense a dosage from the syringe, the drive spring being initially locked in an unreleased position;

a housing containing the body and drive spring;

a release apparatus coupled with the housing;

10 the body slidable with respect to the housing and configured for sliding upward in the housing when the injector device is pressed down at an injection site to engage the release apparatus and release the drive spring for delivering a dosage.

2. The injector device of claim 1 wherein the body includes a drive assembly
15 including the drive spring and a drive member, the drive member being initially locked for locking the drive spring in the unreleased position.

3. The injector device of claim 2 wherein the drive member is bifurcated and separated for being locked.

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4. The injector device of claim 3 wherein the release apparatus is configured to squeeze the bifurcated member together when the body slides with respect to the housing to thereby release the drive spring.

5. The injector device of claim 4 wherein the bifurcated member includes a cam surface that engages a corresponding cam surface of the release apparatus when the body slides in the housing.
- 5 6. The injector device of claim 1 further comprising a release spring coupled with the release apparatus for biasing the body downwardly away from the release apparatus.
7. The injector device of claim 3 further comprising a safety for engaging the
10 bifurcated member and maintaining it in a separated condition to prevent release of the drive spring.
8. The injector device of claim 2 wherein the drive member is coupled with the syringe, the drive spring operable for driving the drive member to dispense a
15 dosage from the syringe.
9. The injector device of claim 2 wherein the drive member has a movement stroke, the drive member, in a stroke first portion, driving the syringe to inject the needle and, in a stroke second portion, driving the plunger in the syringe to
20 dispense a dosage.

10. The injector device of claim 9 further comprising a drive washer engaging the syringe, the drive member driving the drive washer and syringe in the stroke first portion and passing through the washer to drive the plunger in the stroke second portion.

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11. The injector device of claim 1 wherein the housing is contoured to fit a hand.

12. The injector device of claim 1 wherein the housing includes finger indents.

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13. The injector device of claim 7 further comprising a trigger, the trigger being coupled with the safety for disengaging the safety from the bifurcated member.

14. An injector device comprising:

a syringe with a needle and plunger;

a drive member coupled with the syringe and having a stroke to drive the syringe forward to inject the needle and subsequently to drive the plunger

5 forward to dispense a dosage from the syringe;

the drive member rotating from a first position to a second position in the stroke to drive the syringe and needle forward and, upon reaching the second position, driving the plunger forward to dispense a dosage.

10 15. The injector device of claim 14 further comprising:

a body containing the drive member and syringe;

a slot formed in the body to wrap at least partially around the body between the first and second positions;

15 the drive member including a key structure for following the slot during rotation between the first and second positions.

16. The injector device of claim 15 wherein the slot, at the second position, extends generally straight along the body, the drive member following the straight slot to drive the plunger forward.

17. The injector device of claim 14 further comprising:

a drive washer positioned between the drive member and syringe;

the drive member, between the first and second positions, driving the washer to drive the syringe, and at the second position, passing through the

5 drive washer to drive the plunger.

18. The injector device of claim 17 wherein the drive washer and drive member have key structures thereon;

the drive member driving the washer to drive the syringe and, at the
10 second position, the key structures aligning so the drive member passes through the drive washer to drive the plunger.

19. The injector device of claim 17 wherein the drive washer includes an aperture therein, the drive member being shaped to not pass through the
15 aperture in the first position but in the second position, to pass through the aperture to drive the plunger.

20. The injector device of claim 19 wherein the drive washer aperture has a cross sectional shape, a section of the drive member having a cross sectional
20 shape corresponding to the cross sectional shape of the aperture to pass through the aperture in the second position.

21. The injector device of claim 14 further comprising a body containing the syringe and drive member, the body including a ratchet structure, the syringe ratcheting in the ratchet structure as it is driven.

- 5 22. The injector device of claim 17 further comprising a body containing the syringe and drive member, the body including a ratchet structure, the drive washer ratcheting in the ratchet structure as it is driven.

23. An injector device comprising:

a syringe with a needle and plunger;

a drive member coupled with the syringe and having a stroke to drive the syringe forward to inject the needle and subsequently to drive the plunger

5 forward to dispense a dosage from the syringe;

a drive washer positioned between the drive member and syringe;

the drive member, in an injection portion of the stroke, driving the washer to drive the syringe, and in a dosage portion of the stroke, passing through the drive washer to drive the plunger.

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24. The injector of claim 23 wherein the drive washer and drive member have key structures thereon;

the drive member driving the washer to drive the syringe and, in the dosage portion of the stroke, the key structures aligning so the drive member

15 passes through the drive washer to drive the plunger.

25. The injector device of claim 23 wherein the drive washer includes an aperture therein, the drive member being shaped to not pass through the aperture in the first position but in the second position, to pass through the

20 aperture to drive the plunger.

26. The injector device of claim 25 wherein the drive washer aperture has a cross sectional shape, a section of the drive member having a cross sectional

shape corresponding to the cross sectional shape of the aperture to pass through the aperture in the second position.

27. The injector device of claim 23 further comprising a body containing the
5 syringe and drive member, the body including a ratchet structure, the drive
washer ratcheting in the ratchet structure as it is driven.

28. An injector device comprising:
a syringe with a needle and plunger;
a drive member coupled with the syringe and having a stroke;
the drive member, in an injection portion of the stroke, driving the syringe
5 forward to inject the needle and, in a dosage portion of the stroke, driving the
plunger forward to dispense a dosage from the syringe;
a protective sheath;
the protective sheath being biased forwardly during the injection portion
and automatically released during the dosage portion to cover the needle when
10 the injection is complete.

29. The injection device of claim 28 wherein the protective sheath is
automatically released generally upon completion of the dosage portion.

15 30. The injection device of claim 28 further comprising a sheath spring, the
sheath spring being compressed to bias the sheath during the injection portion of
the stroke.

31. The injection device of claim 28 further comprising a latch structure
20 configured to engage the forwardly biased protective sheath to prevent it from
being released.

32. The injection device of claim 31 wherein syringe, drive member and
sheath are contained in a body, the latch structure being formed in the body.

33. The injection device of claim 31 wherein the movement of the drive member in the dosage portion of the stroke causes the latch structure to release the protective sheath.

5 34. The injection device of claim 31 wherein the protective sheath includes a tab structure that is engaged by the latch structure.

35. The injection device of claim 33 further comprising a slide coupled with the drive member, the slide moving along the injection device with the drive
10 member to release the protective sheath.

36. The injection device of claim 33 further comprising a slide coupled with the drive member, the slide moving along the injection device with the drive member to engage the latch structure and release the protective sheath.

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37. The injection device of claim 36 wherein the slide engages the latch structure generally upon completion of the dosage portion.

38. An injector device comprising:
a syringe with a needle and plunger;
a drive member coupled with the syringe and having a stroke;
the drive member, in an injection portion of the stroke, driving the syringe
5 forward to inject the needle and, in a dosage portion of the stroke, driving the
plunger forward to dispense a dosage from the syringe;
a protective sheath;
the protective sheath automatically ratcheting forwardly generally upon
completion of the dosage portion of the stroke to cover the needle when the
10 injection is complete.

39. The injection device of claim 38 wherein the protective sheath is
prevented from being released during the injection portion of the stroke.

15 40. The injection device of claim 38 is automatically released generally upon
completion of the dosage portion.

41. The injection device of claim 38 further comprising a latch structure
configured to engage the protective sheath to prevent it from being released
20 during the injection portion of the stroke.

42. The injection device of claim 41 wherein the movement of the drive
member in the dosage portion of the stroke causes the latch structure to release
the protective sheath.

43. The injection device of claim 41 wherein the protective sheath includes a tab structure that is engaged by the latch structure.

44. The injection device of claim 38 further comprising a ratchet structure, the
5 protective sheath engaging the ratchet structure to automatically ratchet forwardly.

45. The injection device of claim 43 further comprising a ratchet structure, the
protective sheath tab structure engaging the ratchet structure to automatically
10 ratchet forwardly.

46. An injector device comprising:
- a body containing a syringe with a needle and plunger;
 - a drive apparatus coupled with the syringe and operable, when released, to drive the syringe forward to inject the needle and subsequently to dispense a dosage from the syringe, the drive spring being initially locked in an unreleased position;
 - a housing containing the body and drive apparatus;
 - a release apparatus coupled with the housing;
 - the body slidable with respect to the housing and configured for sliding upward in the housing when the injector device is pressed down at an injection site to engage the release apparatus and release the drive apparatus for delivering a dosage.
47. An injector device comprising:
- a syringe with a body, a needle and plunger movable in the body;
 - a drive system coupled with the syringe and having a stroke to drive the syringe body forward to inject the needle and subsequently to drive the plunger forward to dispense a dosage from the syringe;
 - the drive system, in an injection portion of the stroke, engaging the syringe body to drive the syringe, and in a dosage portion of the stroke, disengaging from the syringe body to drive the plunger.

48. An injector device comprising:

a syringe with a needle and plunger;

a drive system coupled with the syringe and having a stroke;

the drive system, in an injection portion of the stroke, driving the syringe

5 forward to inject the needle and, in a dosage portion of the stroke, driving the
plunger forward to dispense a dosage from the syringe;

a protective sheath operable for automatically ratcheting forwardly
generally upon completion of the dosage portion of the stroke to cover the
needle when the injection is complete.

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49. An injector device comprising:

a syringe with a needle and plunger;

a drive system coupled with the syringe and having a stroke;

the drive system, in an injection portion of the stroke, driving the syringe

15 forward to inject the needle and, in a dosage portion of the stroke, driving the
plunger forward to dispense a dosage from the syringe;

a protective sheath operable for being biased forwardly during the
injection portion and automatically released during the dosage portion to cover
the needle when the injection is complete.

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50. An injector device comprising:

a body containing a syringe with a needle and plunger;

a drive apparatus coupled with the syringe and operable, when released,
to drive the syringe forward to inject the needle and subsequently to dispense a
5 dosage from the syringe, the drive spring being initially locked in an unreleased
position;

a housing containing the body and drive apparatus;

a visual indicator coupled with the housing, the visual indicator operable
for indicating the status of the injector device.

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51. The injector device of claim 50 wherein the visual indicator indicates that
the injector device is at least one of ON SAFE, OFF SAFE, or USED.

52. The injector device of claim 50 wherein the visual indicator includes a

15 window that indicates the status of the injector device.

53. The injector device of claim 52 wherein the visual indicator includes a
rotating disc, which rotates in the window for indicating the status of the injector
device.

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